



MEASURING WELL-BEING AMONG SCHOOL-AGE CHILDREN:

Seeking a Developmentally Appropriate Qualitative Approach

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public policy. Bellamy intends to continue her education and help implement progressive family policies through the nonprofit sector.

Mentors



Jason Ware earned a PhD in curriculum studies from Purdue University. He is a qualitative research methodologist with a focus on narrative inquiry and a recent turn to participatory action research vis-à-vis community-indicator and well-being projects.

Ware and his research group are exploring the extent to which working with particular urban populations to establish and measure quality-of-life indicators at the neighborhood level can transform material realities and serve as an educative tool.



Zoe Taylor joined the faculty at Purdue University in the fall of 2013. Her research program broadly examines risk and resilience processes in vulnerable youths and their families. Grounded in a bioecological and family systems framework,

the central goal of this research program is to identify resilience factors that promote the healthy development of youths and children despite the adversity they experience. Broadly, Taylor is interested in how individuals and families succeed, stay healthy, and do well despite hardships, transitions, and challenges.

Abstract

Subjective well-being as a new field of social science research is calling for unique and innovative metrics and research methods. Studying the well-being of children introduces additional hurdles for data collection and research. The current field-favorite survey, the Personal Wellbeing Index–School Children (PWI-SC), asks participants to rate their “happiness” on a rating scale for seven domains of well-being and overall satisfaction with life. Current literature in the field of developmental and family science informs on the cognitive capabilities of children throughout their development and suggests that children in middle childhood may lack the ability to express abstract ideas (happiness) in a concrete format, such as a rating scale. Using comparative analysis of the PWI-SC and personal interviews, data from 33 participants aged 6–10 suggests that the PWI-SC is invalid and unreliable when used alone for participants under the age of 10. Furthermore, some of the language used in the PWI-SC provokes tangential but inaccurate impressions in a majority of participants, acting as a barrier for gathering information about specific domains of well-being. To increase the reliability and accuracy of subjective well-being studies with children in middle childhood, researchers should consider the use of qualitative measures such as personal interviews in conjunction with quantitative such measures as the PWI-SC.

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cognitive developmental theory, middle childhood, Personal Wellbeing Index–School Children (PWI-SC), qualitative data, quality of life, subjective well-being

INTRODUCTION

Subjective well-being is a developing field of social science research, enveloping a broad construct that has led to the creation of countless metrics, built for all ages and cultures (Tomyn & Cummins, 2011). Studying the well-being of children, however, introduces particular hurdles for data collection and research. The current field-favorite survey, the Personal Wellbeing Index–School Children (PWI-SC) (see Appendix A) was developed by Cummins and Lau (2005) to be a child-friendly self-completed assessment providing researchers insight to the well-being of children. Cummins and Lau (2005) developed four iterations of the PWI—for adults, schoolchildren, preschool children, and people with intellectual disabilities—each using a rating scale to measure satisfaction. This study focuses on the PWI-SC to identify a lack of distinction between schoolchildren in middle childhood and early adolescence. Cognitive developmental theory suggests that it is not until early adolescence, around ages 10 or 11, that children develop the ability to express abstract ideas—such as satisfaction or happiness—in concrete terms. This distinction between concrete operations and formal operations rests at the base of child development (Piaget, 1952). Piaget’s cognitive developmental theory is foundational in the world of child development, and while many scientists have critiqued his stage-based progression (Halpern, 1965), the capabilities he describes in each stage hold true over the course of a child’s development (Byrnes, 2008; Webb & Daurio, 1975).

While the PWI-SC is consistent across cultures (Tomyn et al., 2019), is valid and reliable when used with teenagers ages 12–18 (Tomyn & Cummins, 2011; Naeinian et al., 2014), and is comparable to the PWI-Adult scale when used for assessing teenagers’ well-being (Tomyn, Fuller-Tyszkiewicz, & Cummins, 2013), I argue that the data collection method is not appropriate for children in middle childhood. As such, there is a gap in field metrics for collecting well-being data with children ages 6–10. While children in this age range may be able to express their well-being in other ways, collecting data using a rating scale is developmentally inappropriate and therefore inaccurate. Identifying a developmentally appropriate method of data collection for children in this transitory age range could limit false data, further field knowledge of quality of life indicators for children, and give insight about how to help today’s children thrive (Lerner, Dowling, & Anderson, 2003). Involving children directly in research is the only way to grasp how they perceive difference within their local

contexts (Crivello, Camfield, & Woodhead, 2009). The individual nature of subjective well-being calls for qualitative data collection methods to capture the contexts through which children each report their own well-being. To test this claim, I designed a comparative analysis of the PWI-SC and personal interview methodology.

RESEARCH METHODOLOGY

To conduct this study, I began with the following research questions:

1. Do qualitative methods of data collection provide more specific insights into a child's well-being than does a standardized index (the PWI-SC)?
2. What factors do children in middle childhood identify as impacting their general well-being?

There were several ethical and logistical aspects to consider for this study. To begin, the age of the participants qualifies them as a special population, and careful measures were taken to ensure their safety and comfort. All interactions with the participants took place in their school in a hallway or a large room with open doors. Interview length was taken into consideration to respect both the teachers' and students' time away from schooling, and disruptions to class time were kept to a minimum. Developmental differences were also considered, and the language used in each interaction was adjusted to the appropriate level for each participant. For this specific study, it was essential that children be the focus and subject; this population is overdue for advancements in the fields of child development, for well-being programming and policy, and for academics, researchers, and change makers to develop tools necessary to better serve them.

RESEARCH DESIGN

After approval from the Purdue Institutional Review Board, 500 consent packets were distributed to the partner elementary school and sent home with each student in grades K–5. After two weeks, 102 packets were returned with signed consent forms. E-mails were sent to the teachers of the consenting sample population, and participants were selected based on availability. This availability paired with efforts to achieve a balanced number of ages resulted in 34 participants being selected. Of these 34 participants, 33 were able to complete both the survey and interview portions of the study, thus the final $N = 33$. Age and gender were the only demographic data gathered about the participants, to focus data

analysis. Interaction with the students took place over six weeks. The age breakdown is as follows:

Age 6: $n = 5$

Age 7: $n = 9$

Age 8: $n = 8$

Age 9: $n = 5$

Age 10: $n = 6$

INTERVIEW PROTOCOL

Interaction with participations occurred on two occasions. During the first meeting, the PWI-SC was administered to individuals or small groups, depending on the time allotment from each teacher. In individual survey administration, participants each stated aloud their answer to a verbal question. In small groups, the participants marked their own answers on paper. This survey took 5 to 10 minutes to complete. During that same week participants were asked to engage in a personal interview with the researcher, which took place at school during school hours and was recorded using a voice-note application. During this interview, I asked participants questions about their well-being, using the PWI-SC as a guide for topics and specific language. Variations in language were used, such as replacing the phrase “how happy are you about what might happen to you later on in your life?” with “how do you feel about your future?” Participants were given the option to draw a picture during the interview to help them feel more comfortable talking with a stranger and to help them enjoy the process. Two examples of these drawings are included here (Figures 1 and 2) to exemplify the interactions between myself and the students. All but three participants opted to draw, but these pictures were not included in data analysis. The participants were free to chat and answer questions for up to 20 minutes, and each participant was prompted with a question representing each of seven domains of well-being as well as a question concerning overall satisfaction, framed in PWI-SC terms as “happiness.”

DATA ANALYSIS STRATEGY

PWI-SC rankings are scored as a percent of scale maximum, taken as an average. Because this study is purposed to compare the validity and reliability of the PWI-SC survey methods, focus was given to comparative analysis rather than PWI-SC results. Response sets showing maximum (100%) or minimum (0%) are generally eliminated prior to



Figure 1. Drawing by boy, age 7.

data analysis but were included in this case to be compared to their interview counterpart.

Descriptive statistics proved most useful in analyzing the discrepancies between survey and interview data. Percent inconsistencies were found using the following equation:

$$\frac{\text{Number of Major Variants} + \frac{1}{2}(\text{Number of Minor Variants})}{\text{Number of Domains Covered in Interview}}$$

Major and minor variants were determined using the criteria found in Appendix B. Minor variants were weighted at half the value of major variants to create a distinction between types of discrepancies. The inconsistencies were analyzed by age and then by domain. These findings are depicted in Figure 3 and Figure 4, respectively.



Figure 2. Drawing by girl, age 10.

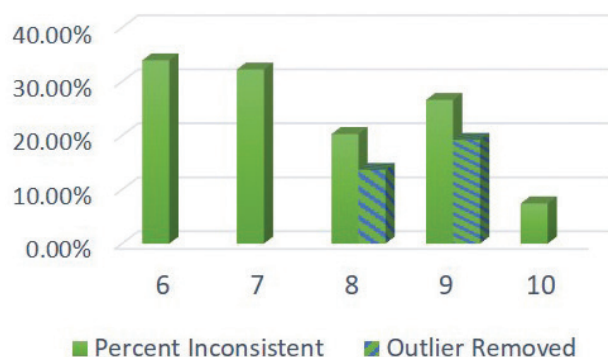


Figure 3. Interview survey: Inconsistency by age.

Interview transcripts were analyzed to conduct a language analysis of the PWI-SC. Word associations, word misunderstandings, and content categories were tracked and counted as an indicator of participants' ability to understand the intended domain. These findings are discussed below in the section "Patterns by Domain."

RESULTS

Patterns by Age and Gender

Children ages 6–7 had the highest number of inconsistencies, at 33.93% and 32.34%, respectively. Participants in this age range had a high number of both major and minor variations, the criteria for which are described in Appendix B. Many of these variations are due to lack of response or limited response; younger participants often gave one-word answers or simply sat silently after being asked a question. However, these nonresponse examples should not be considered representative of this age group; many of the participants were talkative and expressed their feelings using stories and examples. One such participant, a 6-year-old girl, used story retelling to explain how she felt about her safety:

"I feel safe. That's how my parents are always by my side no matter what, even at school they're in my heart. Have you read the book of the invisible string?"

"No, I haven't. Tell me about it."

"It's a really nice book. It tells about somebody. It tells about some kids that were really scared of the 'Big Thunder' one night and they ran to mom, and mom said that when she was just about their age she learned about the invisible string. The Invisible String. You can't see it, but you can

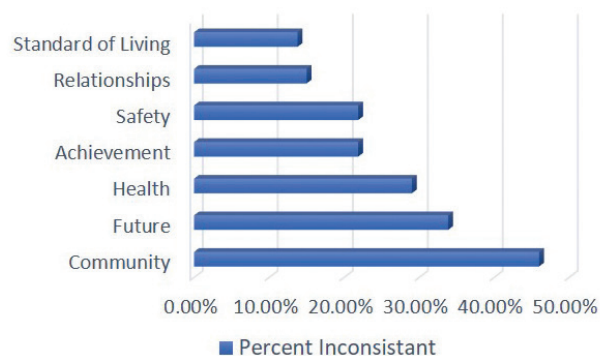


Figure 4. Interview survey: Inconsistency by domain for all ages.

always feel it. They were really scared, but when they learned about it, they asked them how far it could reach. They asked 'could it reach me if I was a submarine captain?' and mom said yes. 'Could it reach me if I was a space explorer?'; the mom said yes."

"That's a beautiful story."

"Could it even reach me if I was a ballerina in Paris?" 'Yes.' 'Could it even reach Uncle Michael?' 'Yes.' It's their uncle that dies, and I got somebody named Uncle Michael too who died. It's the same thing like the story."

"And you feel that invisible string and it makes you feel safe?"

"Yeah."

Boys at this age had shorter responses than girls and tended to not have explanations for their reported feelings. For both genders, when asked to explain their responses, the participants' reasoning was often outside of the scope of the topic domain. This could be indicative of low understanding and lack of formal operations.

Participant responses were markedly more consistent at ages 8 (20.28%) and 9 (26.61%). When inconsistencies were found between the interview and the survey, they were usually minor variations compared to the 6–7 age group, which was composed of a balanced number of major and minor variations. These inconsistencies seemed to come from a change of mind or arbitrary rating scale responses rather than misunderstanding of terms; while the students may have known what each domain was asking, they may not have spent enough thinking about it to have a stable response.

In general, participants ages 8–9 were more talkative and gave more detailed explanations for their responses. Additionally, they had specific comments to accompany each of their rating scale answers, though these comments are not recorded for the PWI-SC. Comments for rating scale responses were not present until age 8. Interestingly, there was one high-inconsistency outlier for ages 8–9, more than 35 points above the mean, and if removed the inconsistencies drop to 13.64% and 19.20%. This observation is statistically insignificant, because with a low number of participants these outliers cannot be removed, but may suggest that 8- and 9-year-olds are overall more consistent than this sample demonstrates.

Inconsistencies at age 10 were minimal. Averaging 7.44%, the participants in this age group seemed to have a good understanding of how to express their feelings in both the survey rating scale format and through discussion in interview. Participants had specific comments about their rating scale responses and gave relevant current examples during interview. Because the interview responses were more elaborate, it is clear that students at this age had spent time thinking about these domains; many of them had future plans, goals they wanted to achieve, and details about the current fifth-grade friendship drama, as one participant indicated:

“Someone was coming to me and complaining about how these people weren’t befriending them, and they were like leaving them out and everything. And I said, ‘I’m just trying to stay out of the drama this year and I can’t really help you, but what I can give you as advice is ignore them.’ Because those people are my friends as well and I didn’t feel like dealing with it. Both of them are my friends. And if you’re like dealing with it or if you’re picking the other side—because the one who’s complaining to me about it did the same thing to them. So they did it back to him. So it was really confusing and it wasn’t the best day ever, but I like talking with people and it really helps.”

Ten-year-olds seemed to be functioning within formal operations well enough to access abstract concepts as they applied to their lives.

Across all ages, boys were more inconsistent than girls, with variant rates of 29.44% compared to 20.63%. While both genders represented a good mix of participants who were chatty, reserved, focused, and distracted, boys tended to exemplify polar ends of these spectrums; they were either very

chatty or very reserved, highly focused or unable to be redirected. Girls tended to represent moderate affects, being reserved but responsive or straying off topic but responding to redirection cues.

All participants, when asked what things in their lives made them happy, reported items in Table 1:

Activities and sports	56.25%
Family	34.38%
Pets	28.13%
Toys and personal belongings	25.00%
Friends	21.88%

Table 1. Responses by percent to “What things make you happy?”

All responses given by the participants fit into these five categories. Younger children described toys and family members as bringing them happiness, and older children more often described sports or favorite activities they did with friends and family. Pets were mentioned across ages and often in conjunction with family.

PATTERNS BY DOMAIN

Of the seven domains covered by the PWI-SC (see Appendix A), personal health, future security, and feeling part of the community proved to be most confusing for a majority of the participants, increasingly so for younger children. The inconsistencies between the survey and the interview arose from one of three scenarios: the participant had not thought about or discussed the topic previously, the participant did not understand the words/phrases used in the question, or the phrasing used in the PWI-SC provoked tangential thinking.

For the future domain, the first scenario arose most often. Large discrepancies were found between the survey and the interview, because many participants asked clarifying questions or needed rephrasing—an opportunity they did not receive during survey administration. Younger participants did not understand the word “future,” and when PWI-SC language (“How do you feel about ‘what may happen later on in your life’?”) was used, they gave one-word answers or stated they did not understand. Older 7-year-olds exhibited an understanding for the domain and discussed future plans but did not use the word “future.” Beginning at age 8, participants both understood the word and could describe detailed ideas about their own futures. When asked

how they felt about what may happen to them later on in their life, participants were able to provide relevant responses 55.17% of the time.

Within the personal health domain, 45% of participants across all ages thought of nutrition as the main or only factor contributing to their health well-being. They described how often they ate vegetables and whether they enjoyed them. Twenty-six percent showed no understanding: four participants (ages 6–7) stated that they did not know what the word “health” meant at all, and four others could not provide any reasoning for their one-word answers. Six students discussed physical wellness, three mentioned dentistry or orthodontia, and two focused on strength.

The “feeling a part of the community” question in Appendix A asks “How happy are you about doing things away from your home?” This question led participants to talk about playing outside of their houses or in their backyards or being physically away from their homes; they often related this to a safety concern, feeling uncomfortable away from their parents. Older participants mentioned enjoying traveling for vacation or going places in town. No participant aged 6–9 understood the word “community” as it relates to a domain of well-being. Students who did understand the word referred to community service activities or fundraising through their school.

Participants across all ages showed a reasonable understanding of the standard of living, relationships, safety, and achievement domains. The interview responses for these domains were longer and more detailed and had obviously been topics of conversation in other parts of the students’ lives. The question used for achievement (“How happy are you about the things you want to be good at?”) elicited especially thoughtful responses, as most of the students had tangible goals within their sports and favorite activities or subjects. One 10-year-old participant was reflective about her basketball skills: “I’m still practicing basketball. When I’m close to a basketball hoop and I try to throw it up, I can’t make it. I can’t shoot the hoop. But I’m trying.”

The eighth measure, “happy with life as a whole,” may stand as an example of the average inconsistency. This domain is seeking to understand a person’s overall life satisfaction. In the survey the question is asked first, but in interview it came last. Participants were asked to “think about your whole life; how happy are you with it?” They were not asked to explain or justify their responses. In this

way, this question mimics the setup of the survey question, but instead of asking for a number the participants were asked to respond with words. With an inconsistency of 27.59%, this comparison may suggest that participants arbitrarily chose numbers on the rating scale without assigning meaning to them and were not able to replicate their responses only a few days later.

Results suggest that the PWI-SC is invalid and unreliable when used alone for participants under the age of 10. This finding implies that rating scales are not appropriate for collecting data from children in early or middle childhood, especially when used alone. Furthermore, some of the language used in the PWI-SC provokes tangential but inaccurate impressions in a majority of participants, acting as a barrier for gathering information about specific domains of well-being. To increase the accuracy and validity of subjective well-being studies with children, researchers should consider the use of qualitative measures (e.g., personal interviews) in conjunction with quantitative measures such as the PWI-SC. Mixed-methods data collection provided a clearer picture of the subjective well-being of the participants, which can allow for more accurate and timely information to be available for parents, educators, social service workers, and policy makers.

DISCUSSION

As Piaget suggested and others clarified, the development of cognitive capabilities of children is a long process, and transforming abstract notions into concrete statements is outside the realm of these abilities until early adolescence. It should be noted that children as young as age 6 were able to describe several domains of their well-being, even if those descriptions did not match their reported rating scale numbers. By grouping ages 6 and 7 and ages 8 and 9, patterns of ability appear: 6- and 7-year-olds have a good grasp of relationships, achievement, and standard of living; 8- and 9-year-olds maintain this grasp, gain an understanding of personal safety, and begin to grasp future security and personal health. It is not until age 10 that these children began to understand the idea of feeling a part of the community; this domain was not even on the radar of younger participants. This information would be unavailable if gathered using only the PWI-SC; the comments and discussion from each participant proved invaluable to the data. Though not incorporated into this study, it may also prove useful to test whether the preschool version of the PWI (PWI-PS) yields more accurate survey-interview comparisons.

The final takeaway from this project stems from the use of the word “happiness” as a child-friendly alternative for “satisfaction.” Table 1 above shows what things the participants talked about that they see as adding to their happiness. Notice that several of the well-being domains are not represented; children do not think about being happy or unhappy with their health, but they had incredible things to say about their family, friends, and favorite things to do. Qualitative methods are time-consuming and difficult to analyze, but they are very valuable and necessary when seeking to understand what a child has to say.

LIMITATIONS

Given the narrow sample population and an even smaller subject group in the study, the results are limited. Additionally, there are several underlying factors impacting the data that was collected: participants’ backgrounds (including socioeconomic status), their parent(s) education and occupation, and family culture effect what types of knowledge and thought processes the participants had access to. Though the students are from the same school, the area they live in contains a wide range of family types, including rural farming families and urban-based academics. Taken as anecdotal data, this study stands as an example of the data that can be collected using qualitative versus quantitative methods, speaking to the value of having discussion, giving time, and incorporating approaches from across disciplines.

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APPENDIX A

This appendix is an abbreviated form of the PWI-SC (Cummins & Lau, 2005), displayed here for clarity. Introduction text, data analysis instructions, and rating scale figures have been removed to reduce bulk. Each item in the “Happy with Life as a Whole and PWI-SC Scale” section is rated on a scale of 0–10, with 0 labeled “very sad,” 5 labeled “not happy or sad,” and 10 labeled “very happy.” Participants report their answers in the form of a number, either written or aloud.

HAPPY WITH LIFE AS A WHOLE AND THE PWI-SC SCALE

Happy with Life as a Whole [Optional]

1. How happy are you . . .
with your life as a whole?

Personal Wellbeing Index–School Children/Adolescents [Life Domains]

1. **[Domain: Standard of Living]**
How happy are you . . .
**about the things you have? Like the money
you have and the things you own?**
2. **[Domain: Personal Health]**
How happy are you . . .
with your health?
3. **[Domain: Achievement in Life]**
How happy are you . . .
with the things you want to be good at?
4. **[Domain: Personal Relationships]**
How happy are you . . .
about getting along* with the people you know?
[* The original phrase is “getting on with.”
This was changed for regional language
differences.]
5. **[Domain: Personal Safety]**
How happy are you . . .
about how safe you feel?
6. **[Domain: Feeling Part of the Community]**
How happy are you . . .
about doing things away from your home?
7. **[Domain: Future Security]**
How happy are you . . .
**about what may happen to you later on in
your life?**

APPENDIX B

Criteria for Determining Inconsistency Between Survey and Interview

MAJOR VARIATIONS

Giving a one-word positive answer during interview, with a survey rating lower than 8.

Describing only negative factors about a domain but ranking it higher than 7.

Describing only positive factors about a domain but ranking it lower than 7.

Describing equally positive and negative aspects of a domain but ranking it 0–2 or 9–10.

Ranking a domain below 5 but not giving any reasons why in interview or “I don’t know.”

Any rating where in interview the participant clearly does not understand the domain/word used.

MINOR VARIATIONS

Ranking a domain lower than 9 but describing only positive aspects of a domain; giving a one-word positive answer and having no elaboration when prompted.

Ranking an item 10 but in interview providing one or more examples of dissatisfaction.

Ranking an item 0 or 1 but in interview providing one or more examples of satisfaction.